Linda Jacobson
RCRA Project Manager
US EPA Region VIII
8ENF-T
999 18th Street, Suite 300
Denver, Colorado 80202-2466

October 4, 2005

SENT BY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

CONSENT DECREE
CIVIL ACTION NO. CV 98-3-H-CCL
EAST HELENA SITE
WORK PERFORMED IN SEPTEMBER 2005
PROGRESS REPORT #90

Dear Ms. Jacobson:

On May 5, 1998, Asarco and the United States Environmental Protection Agency (EPA) entered into a Consent Decree (Decree) to further the objectives of the Resource Conservation and Recovery Act (RCRA) and the Clean Water Act (CWA). Section XI of the Decree (Reporting: Corrective Action) requires Asarco to submit certified monthly progress reports to EPA which discuss the actions taken by Asarco in achieving compliance with the Decree. The reports are to be submitted to EPA no later than the twentieth (20th) day of the following month. The following describes only those activities that have occurred or are related to projects performed during September 2005. The historical actions taken by Asarco is achieving compliance with the Decree are contained in previous monthly progress reports.

a. Describe the actions, progress, and status of projects which have been undertaken pursuant to Part VII of the Decree;

The Phase I RFI Site Characterization draft Report was submitted to EPA on April 1, 2003. On April 29, 2005, Asarco received EPA's finalized comments on the RFI draft report. On July 7, 2005, Asarco submitted responses to EPA's comments and provided the Phase I RFI Site Characterization revised report (July 2005). Concurrently with this submittal, Asarco provided responses to EPA's April 26, 2005 comments on the Interim Measures Air Sparging Pilot Test Draft Summary Report (February 2005).

On September 13-14, 2005, Jon Nickel and Bob Miller met with you at the Asarco East Helena site to review the status of RCRA Consent Decree issues. During the visit, you had an opportunity to further tour the Asarco facility (CAMU landfill, Upper and Lower lake, on-site monitoring well sites...) and the surrounding areas (east fields, off-site monitoring well sites, Gail Street locations...) within the City of East Helena.

On September 14, 2005, Jon Nickel, Bob Miller, and you participated in a conference call with Rick Wilkin to discuss prospective interim measures to address groundwater arsenic issues at the East Helena site. Following these discussions, you advised Asarco that EPA is considering postponing the requirement to develop the Phase II RFI/Risk Assessment Work Plan. Instead, EPA would direct Asarco to amend the Interim Measures Work Plan to incorporate an evaluation of remedial measures that address groundwater arsenic issues. EPA is expected to submit a letter to Asarco in early October 2005 that outlines this proposal.

On September 14, 2005, Jon Nickel and you agreed upon the date for the RCRA Consent Decree annual public meeting. This meeting is scheduled to take place on October 25, 2005 at 7:00 pm at the East Helena Volunteer Firehall. Public notices announcing the public meeting will be placed in the October 16, 2005 and October 23, 2003 Sunday editions of the Independent Record. During the week of October 10, 2005, Asarco will notify (by letter) interested parties and governmental officials of the meeting dates. On September 16, 2005, Jon Nickel sent you a letter outlining the general format for the October 25, 2005 public meeting.

During September 2005, Asarco had anticipated constructing groundwater monitoring well(s) down gradient of the intermediate aquifer arsenic plume. The installation of the Asarco monitoring wells was to be coordinated with the installation of groundwater monitoring wells associated with the PRB pilot-scale program. EPA advised Asarco that construction of the PRB groundwater monitoring wells would take place during the week of September 12, 2005. Now, Asarco has been advised that EPA's contractor has been delayed and may not be available until early October 2005. Asarco is concerned that, if the down gradient groundwater monitoring well(s) are not installed in the very near future, the data gathered from these wells will not be available to share during the October 25, 2005 public meeting.

On September 8, 2005, Asarco completed the bi-monthly residential groundwater well sampling outlined in Asarco's on-going Post Remedial Investigation (RI)/Feasibility Study (FS), Long Term Monitoring Program. Under this program, the Jensen, Nordstrom, and Yuricic irrigation groundwater wells and the Corbett (formerly Marcum) residential groundwater drinking water well were sampled. All of the analytical dissolved arsenic results obtained from the

September 2005 sampling were below the laboratory detection limit of 0.002 mg/l.

During September 2005, Asarco forwarded to the Asarco environmental trustee two Contractor Claim Forms for work that was performed under the on-going Post RI/FS, Long-Term Monitoring Program at the East Helena site.

A summary of the correspondence transmitted as part of the East Helena Consent Decree in September 2005 is included in Attachment 1.

b. Identify any requirements under the Part VII of the Decree that were not completed in a timely manner, and problems or anticipated problem areas affecting compliance with the Decree;

There were no requirements that were not completed in a timely manner nor were there problems or anticipated problem areas that affect compliance with the Decree.

c. Describe projects completed during the prior month, as well as activities scheduled for the next month;

In accordance with the March 2000 Groundwater Source Control Interim Measures Design Analysis, Plans, and Specification report, the speiss handling area and the former acid plant sediment drying area are being inspected monthly with the last inspection occurring on September 2, 2005. This monthly inspection documented the condition of the interim measures. The inspection confirmed that all scheduled interim measures were in place.

Phase III Sparge Testing – On February 3, 2005, Jon Nickel hand-delivered the Interim Measures Air Sparge Pilot Test Draft Summary Report to you. On April 28, 2005, Asarco received EPA's comments on the draft report. On July 7, 2005, Asarco submitted responses to EPA's comments on the Interim Measures Air Sparging Pilot Test Draft Summary Report.

CAMU Landfill - The construction of the CAMU landfill is complete. The Final Construction Report for the CAMU-Phase 1 Cell was hand-delivered to EPA on January 23, 2002. In accordance with the July 2000 CAMU Design Analysis Report (Operation and Maintenance Plan), the CAMU is being inspected monthly with the last inspection occurring on September 14, 2005. This monthly inspection documented the condition of the CAMU. In September 2005, approximately 5,450 gallons of water was removed from the CAMU leachate collection system. No water was extracted from the CAMU leak detection system, even after 30 minutes of pumping.

RCRA Facility Investigation (RFI) - The Phase I RFI Site Characterization draft Report was submitted to EPA on April 1, 2003. On April 29, 2005, Asarco received EPA's finalized comments on the draft RFI. On July 7, 2005, Asarco

submitted 1) responses to EPA's comments and 2) the Phase I RCRA Facility Investigation (RFI) Site Characterization revised report (July 2005).

Depending upon EPA's groundwater monitoring well construction contractor availability, Asarco anticipates installing groundwater monitoring well(s) down gradient of the intermediate aquifer arsenic plume during early October 2005.

d. Describe, and estimate the percentage of, studies completed;

The original bench-scale testing program for the Phase III air sparge test is 100% complete. The testing has been expanded to include additional column tests. The additional testing is 100% complete. The sparge pilot test program is 100% complete. The Interim Measures Air Sparging Pilot Test Draft Summary Report was submitted to EPA on February 3, 2005. On April 28, 2005, Asarco received EPA's comments on the draft report. On July 7, 2005, Asarco submitted responses to EPA's comments on the Interim Measures Air Sparging Pilot Test Draft Summary Report.

The RFI groundwater modeling is 100% complete. The results of this modeling exercise have been included in the Phase I RFI Site Characterization draft Report.

The Interim Measures Work Plan Addendum (May 2002) and responses to EPA's July 1, 2002 comments are 100% complete.

The implementation (field investigations) of the Interim Measures Work Plan Addendum (May 2002, and its revisions) is 100% complete.

e. Describe and summarize all findings to date;

The details of past findings through August 2005 are described and summarized in previous monthly progress reports.

f. Describe actions being taken to address problems;

There were no actions taken to address problems associated with the Decree.

g. Identify changes in key personnel during the period;

Asarco continues to use the services of Asarco Consulting Incorporated and Hydrometrics Incorporated to perform the various activities required under the Consent Decree. The Consent Decree activities will continue to be administrated under the direction of Robert Miller.

h. Include copies of the results of sampling and tests conducted and other data generated pursuant to work performed under Part VII of the Decree since the last Progress Report. Asarco may submit data that has been validated

and confirmed by Asarco to supplement any prior submitted data. Updated validated and confirmed data shall be included with the RFI Report, if not delivered before;

Two data validation packages, entitled "Validation Summary, Asarco East Helena Interim Measures & Post Remedial Investigation, East Helena Private Well Groundwater, Inorganic Analyses, May 2005" and " Validation Summary, Asarco East Helena Interim Measures, East Helena Residential Groundwater, Inorganic Analyses, July 2005" are attached to this progress report.

The Energy Laboratory raw analytical sample results obtained from the September 2005 Post Remedial Investigation (RI)/Feasibility Study (FS), Long Term Monitoring Program (Bi-Monthly Residential Groundwater Wells) are attached to this monthly progress report. This data is currently being validated and will be submitted once completed.

i. **Describe the status of financial assurance mechanisms, including whether any changes have occurred, or are expected to occur which might affect them, and the status of efforts to bring such mechanisms back into compliance with the requirements of this Decree.**

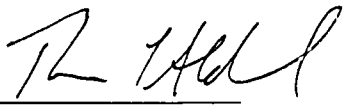
ASARCO is still unable, at this time, to make the required financial assurance demonstration using the mechanisms outlined in the East Helena Consent Decree. However, EPA agreed in paragraph 36 of the subsequent national consent decree (U.S. v. ASARCO and Southern Peru Holdings Corp., No. CV 02-2079-PHX-RCB (entered February 3, 2003)) to forego penalties for any noncompliance with financial assurance requirements in RCRA or CERCLA consent decrees (such as the East Helena decree) in calendar years 2003-2005. (Paragraph 35 of the decree also forgoes penalties for past inability to demonstrate financial assurance from December 1997 to the entry of the Decree.) ASARCO continues to try and improve its financial position and hopes to be able to make the required financial assurance demonstration in the future.

Sincerely,

Jon Nickel

CERTIFICATION
PURSUANT TO U.S. v ASARCO INCORPORATED
(CV-98-3-H-CCL, USDC, D. Montana)

I certify under penalty of law that this document, September 2005 Progress Report and all attachments, were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

Signature 
Name: Thomas L. Aldrich
Title: Vice President Environmental Affairs
Date: October 3, 2005

CONSENT DECREE
EAST HELENA SITE
SEPTEMBER 2005 PROGRESS REPORT

SUMMARY OF CORRESPONDENCE
ATTACHMENT 1

DATE OF TRANSMITTAL	CORRESPONDENCE SENT FROM	CORRESPONDACE SENT TO	SUBJECT	RESPONSE
September 26, 2005	Jon Nickel	Linda Jacobson	Two Contractor Claim Forms RCRA Consent Decree Activities	No Formal Response Required
Attached to This Progress Report	Tom Aldrich	Linda Jacobson	Validation Summary Asarco East Helena Interim Measures & Post-Remedial Investigation East Helena Private Well Groundwater Inorganic Analyses May 2005 and Validation Summary Asarco East Helena Interim Measures East Helena Residential Groundwater Inorganic Analyses July 2005	No Formal Response Required
Attached to This Progress Report	Tom Aldrich	Linda Jacobson	Raw Analytical Data from the September 2005 Post RI/FS Long-Term Monitoring Project (Bi-Monthly Residential	No Formal Response Required

M30346
LQ-23

M303466
L9-23

Raw Data

Asarco East Helena Plant

Validation Summary Asarco East Helena
Interim Measures & Post-Remedial Investigation
East Helena Private Well Groundwater
Inorganic Analyses May 2005
and
Validation Summary Asarco East Helena
Interim Measures East Helena
Residential Groundwater Inorganic Analyses July 2005
and
Raw Analytical Data from the September 2005
Post RI/FS Long-Term Monitoring Project

VALIDATION SUMMARY
ASARCO EAST HELENA INTERIM MEASURES & POST-REMEDIAL INVESTIGATION EAST HELENA PRIVATE WELL GROUNDWATER INORGANIC ANALYSES MAY 2005

Prepared for:
Mr. Jon Nickel
ASARCO Incorporated
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
6900 Cherry Blossom Lane
Albuquerque, NM 87111

September 2005

TABLE OF CONTENTS

LIST OF APPENDICES

GLOSSARY OF TERMS

CLP.....Contract Laboratory Program

COC.....Chain of Custody

CRDL.....Contract Required Detection Limit

DI.....Deionized Water

DIS.....Dissolved

DQO.....Data Quality Objective

ELI-Casper.....Energy Laboratories, Inc. – Casper, Wyoming

EPA.....U.S. Environmental Protection Agency

IDL.....Instrument Detection Limit

IM .....Interim Measures

LCS.....Laboratory Control Sample

MS.....Matrix Spike

NA.....Not Applicable

PDLG.....Project Detection Limit Goal

Post RI .....Post Remedial Investigation

QC.....Quality Control

RPD.....Relative Percent Difference

SC .....Specific Conductivity

TDS.....Total Dissolved Solids

SUMMARY

East Helena private well groundwater samples were collected on May 4 and 25, 2005 for the ASARCO East Helena Facility Interim Measures (IM) and Post-Remedial Investigation (Post RI) Projects. These samples were analyzed by Energy Laboratories Inc., in Casper, Wyoming (ELI-Casper). Inorganic constituents for the samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002). Tables containing Validation Code Definitions (Table 1), Summary of Qualified Data (Table 2), and the Historical Comparison Summary (Table 3) are located in Appendix 1. The validated database is located in Appendix 2.

Data quality objectives for this project and the results for this sampling event were as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 99.4% (159 out of 160) of the field and laboratory duplicate results were within control limits.**

- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met as 100% of the LCS (see the following note) and MS results were within control limits.**

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. **This goal was met as 100% of the planned data were analyzed and deemed valid.**

The East Helena private well data collected for the May 2005 sampling event are deemed acceptable for the purposes of the project, provided the user is aware the qualified data may indicate a possible variability. Of the total number of analyses, **97.4% (554 out of 569)** can be used without qualification.

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for 25 groundwater samples collected on 5/4/05 and 5/25/05 for the ASARCO East Helena Interim Measures project. Included with these samples were two field blank and two field duplicate samples.

- Validation procedures used are generally consistent with:
  - _X_ EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
  - _X_ Work Plan – Interim Measures Work Plan Addendum (ASARCO 2002)
  - ___ Other

- Overall level of validation:
  - ___ CLP
  - _X_ Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
  - ___ Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
  - _X_ Yes
  - ___ No

- All documentation of field procedures was provided as required.
  - _X_ Yes
  - ___ No

3. FIELD PROCEDURES

- All project required sites were visited.
  - _X_ Yes – see the notes on the following page
  - ___ No

Project Site Notes: The following items were noted for this sampling event.

- Samples were collected at site Amchem4 (American Chemet Well #4) on 5/4/05 and 5/24/05 in order to confirm dissolved arsenic data.
- The site code for Hwy12E (Highway 12 East) was changed to MnLv800 (800 Manlove) to more clearly indicate the location of the well.
- Two well sites located at the Twilight Trailer Court (Twilight1 and Twilight2) were added to this sampling event.
- Site EHC2 (East Helena City Water Well #2) was not sampled because it has not been operated for more than five years.
- A sample was not collected at site Gail109 (109 Gail) because the well was shut off due to yard excavation.
- A sample was not collected at site Gros107I (107 E. Groschell irrigation well) because the irrigation system had not been turned on for the season.

- Field parameters were measured in accordance with the project work plan.
  _X_ Yes
  ___ No

- Field instruments were calibrated daily and before measurements were collected.
  _X_ Yes
  ___ No

- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
  _X_ Yes
  ___ No

- Data entry into field books, on COCs, and on sample labels were accurate and complete.
  _X_ Yes
  ___ No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).
_X_ Yes
___ No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs).
_X_ Yes
___ No

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).

_X_ Yes
___ No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

___ Yes
_X_ No – see notes

Notes: Results associated with samples that exceeded control limits were flagged **"J"** to indicate a possible variance. Associated samples are collected the same day and are of the same matrix as the field duplicate sample. Following is a summary of these exceedances:

Site	Sample & Duplicate Code	Sample Date	Analyte	Sample Result (mg/L)	Dup Result (mg/L)	PDLG (mg/L)	RPD or Diff (mg/L)	# of Flags
Thurman, 303	HER-0505-300 & EHR-0505-301	5/4/05	Iron (dis)	0.06	0.03	0.02	0.03 Diff	15

6. LABORATORY PROCEDURES

- **Laboratory procedures followed**
  - _X_ CLP-Statement of Work (EPA 2001)
  - _X_ SW-846 (EPA 1986)
  - _X_ Methods for Chemical Analysis of Water and Wastes (EPA 1983)
  - ___ Other

- **Holding times met**
  - _X_ Yes
  - ___ No

- **Consistency with project requirements**

  Analyses were carried out as required by the project work plan (ASARCO 2002).

  _X_ Yes
  ___ No

  Project specified methods were used.

  _X_ Yes
  ___ No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.

  ____ Yes
  _X_ No – see notes
  Notes: The laboratory used 0.02 mg/L as the reporting limit instead of 0.015 mg/L for dissolved manganese. All dissolved manganese results for the samples were reported as <0.02 mg/L except for site Gail009 (EHR-0505-311).

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater.

  _X_ Yes
  ____ No

- All the analytes in the blank were less than the PDLG.

  ___ Yes
  _X_ No – see notes
  Notes: Samples associated with blank detections, and with detected results less than five times the blank value were flagged **"J"** to indicate a possible positive bias. Following is a summary of field blank detections:

Blank Type	Sample Code	Batch	Analytical Date	Parameter	Result (mg/L)	PDLG (mg/L)	# of Flags
Method	High Purity Water	C05050186	5/5/05	Specific Conductivity (SC)	0.4	0.2	0*

***Note:** Associated sample results were greater than five times the blank result.

9. LABORATORY MATRIX SPIKES

- A MS sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

  ___ Yes
  _X_ No – see notes
  Notes: The following items were noted for this sampling event.

  - Samples from an unknown source were used for chloride and sulfate matrix spikes for samples collected on 5/25/05. Laboratory control samples were used to evaluate the accuracy of these samples.

- MS recoveries were within the required control limits (75-125%).
  _X_ Yes
  ___ No

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).
  _X_ Yes
  ___ No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.
  _X_ Yes
  ___ No

11. LABORATORY CONTROL STANDARDS

- The reference material used was of the correct matrix.
  _X_ Yes
  ___ No

- Laboratory Control Samples (LCS) were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).
  ___ Yes
  _X_ No – see notes

  Notes: Specific LCS samples were not run for SC, pH, dissolved calcium, magnesium, potassium, sodium, arsenic, cadmium, copper, iron, lead, manganese, and zinc. Therefore the Initial Calibration Verification (ICV) Standards and Continuing Calibration Verification (CCV) Standards were used to assess the accuracy of these analytes.

- LCS recoveries were within the required control limits (80-120% or certified range).
  _X_ Yes – see notes
  ___ No

  Notes: The required control limit range for ICVs and CCVs is 90 to 110% recovery. All ICV/CCV recovery rates were within this range.

12. INTERPARAMETER COMPARISON

_X_ Lab pH vs. Field pH
_X_ Lab Specific Conductivity (SC) vs. Field SC
_X_ Total Dissolved Solids (TDS) vs. SC

Lab pH vs. Field pH: Lab and field pH values are compared using duplicate QC criteria (refer to Section 5). All pH comparisons were less than 20 RPD and ranged from 0.1 to 13.0 RPD.

Lab SC vs. Field SC: Lab and field SC values are compared using duplicate QC criteria (refer to Section 5). All SC comparisons were less than 20 RPD and ranged from 3.3 to 16.5 RPD.

TDS vs. Lab SC: The ratio of TDS to field SC results should lie between 0.55 and 0.75. This ratio is intended to check the accuracy of the TDS and lab SC measurements. In natural waters with high sulfate, the ratio may be much higher. This ratio is less accurate in dilute waters. TDS/SC ratios for this sampling event were from 0.49 and 0.81. Although some of these ratios were not within the intended range, the TDS and SC results for the sites were line with historical data. Therefore no action was taken.

13. HISTORICAL COMPARISON SUMMARY

Data for this sampling event were compared with previous sampling events. All results that were than greater than three standard deviations from the historical mean, are reported in Table 3, Appendix 1. Note that the lowest dissolved arsenic and copper results reported for sites Clint126I and EHC1 were due to lower reporting limits; and the highest dissolved manganese and zinc values reported for site EHC1 were due to elevated reporting limits.

14. DATA QUALITY OBJECTIVES (DQOS)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).

  _X_ Yes –see the following table

  ___ No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	22	1	21	95.5%
Lab Duplicates	138	0	138	100%
Overall	**160**	**0**	**159**	**99.4%**

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).

  _X_ Yes – see the table on the following page

  ___ No

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Matrix Spikes	72	0	72	100%
LCS*	165	0	165	100%
Overall	**237**	**0**	**237**	**100%**

*ICV and CCV results were included.

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).
  _X_ Yes – see the following table
  ___ No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
569	**569**	**0**	**569**	**100%**

- Samples were qualified for QC exceedances and deficiencies.
  _X_ Yes – see the following table
  ___ No

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
569	**15**	**554**	**97.4%**

15. CONCLUSION

All planned sites were sampled and the required number of measurements for these sites was analyzed and deem valid for May 2005 East Helena private well sampling event. The East Helena private well data collected for the May 2005 sampling event are deemed acceptable for the purposes of the project, provided the user is aware the qualified data may indicate a possible variability.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

ASARCO 2002. *Interim Measures Work Plan Addendum, East Helena Facility.* ASARCO Consulting Inc. Revised May.

EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.

EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.

EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.

EPA 2002. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. July.

APPENDIX 1

TABLES

TABLE 1.

DATA VALIDATION CODES AND DEFINITIONS

CODE	DEFINITION
J	The associated numerical value is an estimated quantity because quality control criteria were not met.
UJ	Blank contamination. Indicates a possible high bias and/or false positive. The associated value is an estimate.
R	Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification.
E	Estimated. (Not an EPA code.)
A	Anomalous data.. No apparent explanation for discrepancy in data. Applied based on historic results and on comparisons with other results for the same sample (not an EPA code.).

TABLE 2. SUMMARY OF QUALIFIED DATA
EAST HELENA PRIVATE WELLS
MAY 2005 SAMPLING EVENT

Site	Sample ID	Sample Date	Parameter	Result (mg/L)	Flag	QC Type	Exceedance
Amchem4	EHR-0505-315	5/4/2005	Iron (Fe) Dis	0.1	J	Field Dup	0.03 mg/L Diff
EHC1	EHR-0505-305	5/4/2005	Iron (Fe) Dis	< 0.02	J	Field Dup	0.03 mg/L Diff
EHC3	EHR-0505-306	5/4/2005	Iron (Fe) Dis	< 0.02	J	Field Dup	0.03 mg/L Diff
Gail, 1	EHR-0505-310	5/4/2005	Iron (Fe) Dis	0.06	J	Field Dup	0.03 mg/L Diff
Gail, 105	EHR-0505-303	5/4/2005	Iron (Fe) Dis	< 0.02	J	Field Dup	0.03 mg/L Diff
Gail, 203	EHR-0505-307	5/4/2005	Iron (Fe) Dis	0.03	J	Field Dup	0.03 mg/L Diff
Gail, 3	EHR-0505-308	5/4/2005	Iron (Fe) Dis	0.03	J	Field Dup	0.03 mg/L Diff
Gail, 401	EHR-0505-304	5/4/2005	Iron (Fe) Dis	0.04	J	Field Dup	0.03 mg/L Diff
Gail, 9	EHR-0505-311	5/4/2005	Iron (Fe) Dis	0.03	J	Field Dup	0.03 mg/L Diff
Groschell, 210 E	EHR-0505-314	5/4/2005	Iron (Fe) Dis	0.09	J	Field Dup	0.03 mg/L Diff
Lewis, 607	EHR-0505-312	5/4/2005	Iron (Fe) Dis	< 0.02	J	Field Dup	0.03 mg/L Diff
Manlove, 800	EHR-0505-309	5/4/2005	Iron (Fe) Dis	0.03	J	Field Dup	0.03 mg/L Diff
Montana, 316 N.	EHR-0505-313	5/4/2005	Iron (Fe) Dis	0.02	J	Field Dup	0.03 mg/L Diff
Thurman, 303	EHR-0505-300	5/4/2005	Iron (Fe) Dis	0.06	J	Field Dup	0.03 mg/L Diff
Thurman, 303 Dup	EHR-0505-301	5/4/2005	Iron (Fe) Dis	0.03	J	Field Dup	0.03 mg/L Diff

Table 3. Historical Comparisons~

East Helena Private Wells
May 2005 Bi-Annual Sampling Event

~Where this sampling event's data and historical mean difference is greater than three times the historical standard devation.

Station	This Sampling Event's Data			----------Historical Data----------				Comparison To Historical Data		
Parameter	Sample Date		Value	Cnt	Min	Max	Mean	Std Dev	# of Std Dev*	High or Low	Elev DL**
All units are in ppm unless noted otherwise.											
Clint126I	**5/25/2005**										
Arsenic (As)	DIS	<	0.002	2	0.005	0.005	0.0050	0.0000	1010	Lowest	
EHC1	**5/4/2005**										
Copper (Cu)	DIS	<	0.004	2	0.008	0.008	0.0080	0.0000	927	Lowest	
Manganese (Mn)	DIS	<	0.02	2	0.003	0.005	0.0040	0.0014	3.77	Highest	Yes
Zinc (Zn)	DIS	<	0.02	5	0.008	0.01	0.0086	0.0009	4.25	Highest	Yes

Notes:

* # of Std Dev (from historical mean) = Value and historical mean difference divided by the historical standard deviation.

**Elev DL = An elevated reporting limit was used for the sample's value. The true value may be less than the reporting limit and therefore the value and historical average difference may not be greater than three times the standard deviation; and/or the sample's value may not be the highest historical concentration.,

APPENDIX 2

DATABASE

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents by Station Type

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents By Lab Sample ID

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 9/8/2005 1:36:01 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents by Sample ID

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 9/8/2005 1:36:01 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Amchem4	Amchem4	Clint126H	Clint126I
Water	SAMPLE DATE	5/4/2005	5/25/2005	5/25/2005	5/25/2005
	SAMPLE TIME	14:30	10:15	12:20	13 10
	LAB	ELI-Casper	ELI-Casper	ELI-Casper	ELI-Casper
	LAB NUMBER	C05050186-016	C05050997-006	C05050997-008	C05050997-009
	SAMPLE NUMBER	EHR-0505-315	EHR-0505-321	EHR-0505-323	EHR-0505-324
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION				
	REMARKS				
Common Ions: unless noted					
	Bicarbonate (HCO3)	135	138	114	119
	Calcium (Ca) (DIS)	35	35	42	58
	Chloride (Cl)	5	6	18	13
	Magnesium (Mg) (DIS)	8	8	8	13
	Potassium (K) (DIS)	<5	<5	15	<5
	Sodium (Na) (DIS)	13	13	33	32
	Sulfate (SO4)	43	40	108	157
	Total Alkalinity As CACO3	111	113	94	97
Metals: unless noted					
	Arsenic (As) (DIS)	0.002	<0.002	<0.002	<0.002
	Arsenic +3 (DIS)	<0.005	<0.005	<0.005	<0.005
	Arsenic +5 (DIS)	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	<0 004	<0.004	0.026	<0.004
	Iron (Fe) (DIS)	0.1 J	<0.02	<0.02	0.12
	Lead (Pb) (DIS)	<0.005	<0 005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.02	<0.02	<0.02	<0.02
	Zinc (Zn) (DIS)	<0.02	0.24	<0.02	<0.02
Physical/Fld-Lab: unless noted					
	Oxygen (O) (DIS) (Fld)	7.26	4.78	7.51	6.72
	pH	7.32	7.51	7.21	7.22
	pH (Fld)	7.21	7.48	7.04	6.95
	SC (umhos/cm at 25 C) (Fld)	304	290	422	484
	SC (umhos/cm at 25 C)	323	327	498	580
	Total Suspended Solids	<10	<10	<10	<10
	TDS (Measured at 180 C)	249	264	317	391
	Water Temperature (C) (Fld)	15.3	16.5	11.1	10.1

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:36:01 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	EHC1	EHC2	EHC3
Water	SAMPLE DATE	5/4/2005	5/4/2005	5/4/2005
	SAMPLE TIME	08.25	00:00	08.50
	LAB	ELI-Casper	ASARCO	ELI-Casper
	LAB NUMBER	C05050186-006	0	C05050186-007
	SAMPLE NUMBER	EHR-0505-305	EHR-0505-NS3	EHR-0505-306
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION		Well Off	
	REMARKS			
Common Ions: unless noted				
	Bicarbonate (HCO3)	97		95
	Calcium (Ca) (DIS)	29		30
	Chloride (Cl)	8		5
	Magnesium (Mg) (DIS)	6		7
	Potassium (K) (DIS)	<5		<5
	Sodium (Na) (DIS)	11		12
	Sulfate (SO4)	40		49
	Total Alkalinity As CACO3	79		78
Metals: unless noted				
	Arsenic (As) (DIS)	<0.002		<0.002
	Arsenic +3 (DIS)	<0.005		<0.005
	Arsenic +5 (DIS)	<0.005		<0.005
	Cadmium (Cd) (DIS)	<0.001		<0.001
	Copper (Cu) (DIS)	<0.004		<0.004
	Iron (Fe) (DIS)	<0.02 J		<0.02 J
	Lead (Pb) (DIS)	<0.005		<0.005
	Manganese (Mn) (DIS)	<0.02		<0.02
	Zinc (Zn) (DIS)	<0.02		<0.02
Other: unless noted				
	Analyses		0.0	
Physical/Fld-Lab: unless noted				
	Oxygen (O) (DIS) (Fld)	7.44		8.74
	pH	7.34		7.31
	pH (Fld)	7.19		7.12
	SC (umhos/cm at 25 C) (Fld)	253		270
	SC (umhos/cm at 25 C)	266		290
	Total Suspended Solids	<10		<10
	TDS (Measured at 180 C)	173		163
	Water Temperature (C) (Fld)	11.5		9

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Gail001	Gail003	Gail009
Water	SAMPLE DATE	5/4/2005	5/4/2005	5/4/2005
	SAMPLE TIME	11:40	09:30	12:10
	LAB	ELI-Casper	ELI-Casper	ELI-Casper
	LAB NUMBER	C05050186-011	C05050186-009	C05050186-012
	SAMPLE NUMBER	EHR-0505-310	EHR-0505-308	EHR-0505-311
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS			
Common Ions: unless noted				
	Bicarbonate (HCO3)	101	101	106
	Calcium (Ca) (DIS)	31	32	32
	Chloride (Cl)	5	5	5
	Magnesium (Mg) (DIS)	7	7	7
	Potassium (K) (DIS)	<5	<5	<5
	Sodium (Na) (DIS)	13	14	12
	Sulfate (SO4)	54	56	49
	Total Alkalinity As CACO3	83	82	87
Metals: unless noted				
	Arsenic (As) (DIS)	<0.002	<0.002	<0.002
	Arsenic +3 (DIS)	<0.005	<0.005	<0.005
	Arsenic +5 (DIS)	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	0.061	0.024	0.065
	Iron (Fe) (DIS)	0.06 J	0.03 J	0.03 J
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.02	<0.02	0.02
	Zinc (Zn) (DIS)	<0.02	<0.02	0.04
Physical/Fld-Lab: unless noted				
	Oxygen (O) (DIS) (Fld)	7.81	6.8	6.51
	pH	7.36	7.24	7.21
	pH (Fld)	7.35	7.07	7.02
	SC (umhos/cm at 25 C) (Fld)	287	274	285
	SC (umhos/cm at 25 C)	298	305	298
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	183	148	190
	Water Temperature (C) (Fld)	7.9	8	10

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Gall105	Gall109	Gall109	Gall203
Water	SAMPLE DATE	5/4/2005	5/25/2005	7/20/2005	5/4/2005
	SAMPLE TIME	07:20	00:00	10:30	09:10
	LAB	ELI-Casper	ASARCO	ELI-Hel	ELI-Casper
	LAB NUMBER	C05050186-004	0	H05070155-004	C05050186-008
	SAMPLE NUMBER	EHR-0505-303	EHR-0505-NS2	EHR-0705-303	EHR-0505-307
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION		Irrig Well Off		
	REMARKS				
Common Ions: unless noted					
	Bicarbonate (HCO3)	103			95
	Calcium (Ca) (DIS)	30			29
	Chloride (Cl)	4			4
	Magnesium (Mg) (DIS)	7			7
	Potassium (K) (DIS)	<5			<5
	Sodium (Na) (DIS)	12			12
	Sulfate (SO4)	51			52
	Total Alkalinity As CACO3	84			78
Common Ions (mg/L): unless noted					
	Sulfate (SO4)			52	
Metals: unless noted					
	Arsenic (As) (DIS)	<0.002			<0.002
	Arsenic +3 (DIS)	<0.005			<0.005
	Arsenic +5 (DIS)	<0.005			<0.005
	Cadmium (Cd) (DIS)	<0.001			<0.001
	Copper (Cu) (DIS)	0.019			0.015
	Iron (Fe) (DIS)	<0.02 J			0.03 J
	Lead (Pb) (DIS)	<0.005			<0.005
	Manganese (Mn) (DIS)	<0.02			<0.02
	Zinc (Zn) (DIS)	<0.02			<0.02
Metals (mg/L): unless noted					
	Arsenic (As) (DIS)			<0.002	
Other: unless noted					
	Analyses		0.0		
Physical/Fld-Lab: unless noted					
	Oxygen (O) (DIS) (Fld)	3.25			4.46
	pH	7.19			7.33
	pH (Fld)	6.94		7.01	7.11
	SC (umhos/cm at 25 C) (Fld)	263		267	260
	SC (umhos/cm at 25 C)	292			283
	Total Suspended Solids	<10			<10
	TDS (Measured at 180 C)	187		197	144
	Water Temperature (C) (Fld)	10.5			10.5

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:36:01 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Gail203	Gail301	Gail301	Gail401
Water	SAMPLE DATE	7/20/2005	5/25/2005	7/20/2005	5/4/2005
	SAMPLE TIME	11:00	11:50	11.30	08 00
	LAB	ELI-Hel	ELI-Casper	ELI-Hel	ELI-Casper
	LAB NUMBER	H05070155-005	C05050997-007	H05070155-006	C05050186-005
	SAMPLE NUMBER	EHR-0705-304	EHR-0505-322	EHR-0705-305	EHR-0505-304
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION				
	REMARKS				
Common Ions: unless noted					
	Bicarbonate (HCO3)		138		150
	Calcium (Ca) (DIS)		110		95
	Chloride (Cl)		43		30
	Magnesium (Mg) (DIS)		23		21
	Potassium (K) (DIS)		7		5
	Sodium (Na) (DIS)		105		21
	Sulfate (SO4)		417		221
	Total Alkalinity As CACO3		113		123
Common Ions (mg/L): unless noted					
	Sulfate (SO4)	51		464	
Metals: unless noted					
	Arsenic (As) (DIS)		<0.002		<0.002
	Arsenic +3 (DIS)		<0.005		<0.005
	Arsenic +5 (DIS)		<0.005		<0.005
	Cadmium (Cd) (DIS)		<0.001		<0.001
	Copper (Cu) (DIS)		0.014		0.006
	Iron (Fe) (DIS)		0.04		0.04 J
	Lead (Pb) (DIS)		<0.005		<0.005
	Manganese (Mn) (DIS)		<0.02		<0.02
	Zinc (Zn) (DIS)		<0.02		0.04
Metals (mg/L): unless noted					
	Arsenic (As) (DIS)	<0.002		<0.002	
Physical/Fld-Lab: unless noted					
	Oxygen (O) (DIS) (Fld)		6.47		6.54
	pH		7.45		7.15
	pH (Fld)	6.77	6.79	6.92	6.96
	SC (umhos/cm at 25 C) (Fld)	255	1180	1320	692
	SC (umhos/cm at 25 C)		1220		768
	Total Suspended Solids		<10		<10
	TDS (Measured at 180 C)	190	845	912	535
	Water Temperature (C) (Fld)		11.9		11.2

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:36:01 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Gail401	Gail401	Gros107	Gros210
Water	SAMPLE DATE	7/20/2005	7/20/2005	5/25/2005	5/4/2005
	SAMPLE TIME	08:00	08:15	00:00	14:00
	LAB	ELI-Hel	ELI-Hel	ASARCO	ELI-Casper
	LAB NUMBER	H05070155-001	H05070155-002	0	C05050186-015
	SAMPLE NUMBER	EHR-0705-300	EHR-0705-301	EHR-0505-NS1	EHR-0505-314
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION			Irrig Well Off	
	REMARKS		Field Duplicate		
Common Ions: unless noted					
	Bicarbonate (HCO3)				119
	Calcium (Ca) (DIS)				67
	Chloride (Cl)				16
	Magnesium (Mg) (DIS)				15
	Potassium (K) (DIS)				<5
	Sodium (Na) (DIS)				28
	Sulfate (SO4)				183
	Total Alkalinity As CACO3				98
Common Ions (mg/L): unless noted					
	Sulfate (SO4)	227			
Metals: unless noted					
	Arsenic (As) (DIS)				<0.002
	Arsenic +3 (DIS)				<0.005
	Arsenic +5 (DIS)				<0.005
	Cadmium (Cd) (DIS)				<0.001
	Copper (Cu) (DIS)				<0 004
	Iron (Fe) (DIS)				0.09 J
	Lead (Pb) (DIS)				<0.005
	Manganese (Mn) (DIS)				<0.02
	Zinc (Zn) (DIS)				<0 02
Metals (mg/L): unless noted					
	Arsenic (As) (DIS)	<0.002	<0.002		
Other: unless noted					
	Analyses			0.0	
Physical/Fld-Lab: unless noted					
	Oxygen (O) (DIS) (Fld)				4.49
	pH				7.09
	pH (Fld)	6.67			6.79
	SC (umhos/cm at 25 C) (Fld)	683			589
	SC (umhos/cm at 25 C)				620
	Total Suspended Solids				<10
	TDS (Measured at 180 C)	559			412
	Water Temperature (C) (Fld)				10.9

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Lewl607	MnLv800	Mont316
Water	SAMPLE DATE	5/4/2005	5/4/2005	5/4/2005
	SAMPLE TIME	12:30	11:20	12:55
	LAB	ELI-Casper	ELI-Casper	ELI-Casper
	LAB NUMBER	C05050186-013	C05050186-010	C05050186-014
	SAMPLE NUMBER	EHR-0505-312	EHR-0505-309	EHR-0505-313
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells
	DESCRIPTION			
	REMARKS			
Common Ions: unless noted				
	Bicarbonate (HCO3)	177	189	118
	Calcium (Ca) (DIS)	62	62	43
	Chloride (Cl)	6	29	7
	Magnesium (Mg) (DIS)	14	17	10
	Potassium (K) (DIS)	<5	12	<5
	Sodium (Na) (DIS)	19	36	14
	Sulfate (SO4)	99	136	74
	Total Alkalinity As CACO3	145	155	97
Metals: unless noted				
	Arsenic (As) (DIS)	<0.002	0.014	<0.002
	Arsenic +3 (DIS)	<0.005	<0.005	<0.005
	Arsenic +5 (DIS)	<0.005	0.02	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	<0.004	<0.004	<0.004
	Iron (Fe) (DIS)	<0.02 J	0.03 J	0.02 J
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.02	<0.02	<0.02
	Zinc (Zn) (DIS)	0.02	0.02	0.03
Physical/Fld-Lab: unless noted				
	Oxygen (O) (DIS) (Fld)	9.6	7.99	3.77
	pH	7.68	7.84	7.32
	pH (Fld)	7.6	7.75	7.03
	SC (umhos/cm at 25 C) (Fld)	511	643	363
	SC (umhos/cm at 25 C)	534	697	384
	Total Suspended Solids	<10	<10	<10
	TDS (Measured at 180 C)	351	408	249
	Water Temperature (C) (Fld)	11.1	11.1	11

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Porter407	Porter407	Thurman303	Thurman303
Water	SAMPLE DATE	5/25/2005	5/25/2005	5/4/2005	5/4/2005
	SAMPLE TIME	08:20	08:30	06:50	06:55
	LAB	ELI-Casper	ELI-Casper	ELI-Casper	ELI-Casper
	LAB NUMBER	C05050997-001	C05050997-002	C05050186-001	C05050186-002
	SAMPLE NUMBER	EHR-0505-316	EHR-0505-317	EHR-0505-300	EHR-0505-301
	TYPE	Domestic Wells	Domestic Wells	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells	Private Wells	Private Wells
	DESCRIPTION				
	REMARKS		Field Duplicate		Field Duplicate
Common Ions: unless noted					
	Bicarbonate (HCO3)	144		114	
	Calcium (Ca) (DIS)	65		52	51
	Chloride (Cl)	21		15	
	Magnesium (Mg) (DIS)	14		11	11
	Potassium (K) (DIS)	<5		6	6
	Sodium (Na) (DIS)	20		34	33
	Sulfate (SO4)	104		145	
	Total Alkalinity As CACO3	118		93	
Metals: unless noted					
	Arsenic (As) (DIS)	<0.002	<0.002	<0.002	<0.002
	Arsenic +3 (DIS)	<0.005	<0.005	<0.005	<0.005
	Arsenic +5 (DIS)	<0.005	<0.005	<0.005	<0.005
	Cadmium (Cd) (DIS)	<0.001	<0.001	<0.001	<0.001
	Copper (Cu) (DIS)	0.012	0.012	0.01	0.01
	Iron (Fe) (DIS)	<0.02	<0.02	0.06 J	0.03 J
	Lead (Pb) (DIS)	<0.005	<0.005	<0.005	<0.005
	Manganese (Mn) (DIS)	<0.02	<0.02	<0.02	<0.02
	Zinc (Zn) (DIS)	<0.02	<0.02	<0.02	<0.02
Physical/Fld-Lab: unless noted					
	Oxygen (O) (DIS) (Fld)	7.04		4.15	
	pH	7.64		6.79	
	pH (Fld)	6.71		6.29	
	SC (umhos/cm at 25 C) (Fld)	466		500	
	SC (umhos/cm at 25 C)	535		550	
	Total Suspended Solids	<10		<10	
	TDS (Measured at 180 C)	370		354	
	Water Temperature (C) (Fld)	11.2		11.4	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Twilight1	Twilight2	FieldBlank	FieldBlank
Water	SAMPLE DATE	5/25/2005	5/25/2005	5/4/2005	5/25/2005
	SAMPLE TIME	09:25	09:50	07:00	08:40
	LAB	ELI-Casper	ELI-Casper	ELI-Casper	ELI-Casper
	LAB NUMBER	C05050997-004	C05050997-005	C05050186-003	C05050997-003
	SAMPLE NUMBER	EHR-0505-319	EHR-0505-320	EHR-0505-302	EHR-0505-318
	TYPE	Domestic Wells	Domestic Wells	Field QC	Field QC
	GROUP	Private Wells	Private Wells	QC	QC
	DESCRIPTION				
	REMARKS			Blank	Blank
Common Ions: unless noted					
Bicarbonate (HCO3)		92	89		
Calcium (Ca) (DIS)		29	28	<5	
Chloride (Cl)		3	3		
Magnesium (Mg) (DIS)		7	6	<5	
Potassium (K) (DIS)		<5	<5	<5	
Sodium (Na) (DIS)		12	11	<5	
Sulfate (SO4)		48	42		
Total Alkalinity As CACO3		75	73		
Metals: unless noted					
Arsenic (As) (DIS)		<0.002	<0.002	<0.002	<0.002
Arsenic +3 (DIS)		<0.005	<0.005	<0.005	<0.005
Arsenic +5 (DIS)		<0.005	0.005	<0.005	<0.005
Cadmium (Cd) (DIS)		<0.001	<0.001	<0.001	<0.001
Copper (Cu) (DIS)		<0.004	<0.004	<0.004	<0.004
Iron (Fe) (DIS)		<0.02	0.04	<0.02	<0.02
Lead (Pb) (DIS)		<0.005	<0.005	<0.005	<0.005
Manganese (Mn) (DIS)		<0.02	<0.02	<0.02	<0.02
Zinc (Zn) (DIS)		<0.02	<0.02	<0.02	<0.02
Physical/Fld-Lab: unless noted					
Oxygen (O) (DIS) (Fld)		8.83	7.98		
pH		7.4	7.43		
pH (Fld)		7.55	7.5		
SC (umhos/cm at 25 C) (Fld)		240	229		
SC (umhos/cm at 25 C)		276	256		
Total Suspended Solids		<10	<10		
TDS (Measured at 180 C)		191	181		
Water Temperature (C) (Fld)		9.4	9.6		

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

May 2005 Post RI Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	FieldBlank
Water	SAMPLE DATE	7/20/2005
	SAMPLE TIME	08:30
	LAB	ELI-Hel
	LAB NUMBER	H05070155-003
	SAMPLE NUMBER	EHR-0705-302
	TYPE	Field QC
	GROUP	QC
	DESCRIPTION	
	REMARKS	Blank
Metals (mg/L): unless noted		
	Arsenic (As) (DIS)	<0.002

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:36:01 PM

VALIDATION SUMMARY
ASARCO EAST HELENA INTERIM MEASURES
EAST HELENA RESIDENTIAL GROUNDWATER
INORGANIC ANALYSES
JULY 2005

Prepared for:
Mr. Jon Nickel
ASARCO Incorporated
PO Box 1230
East Helena, MT 59635

Prepared by:
Linda L. Tangen
6900 Cherry Blossom Lane
Albuquerque, NM 87111

September 2005

TABLE OF CONTENTS

LIST OF APPENDICES

GLOSSARY OF TERMS

CCV .....Continuing Calibration Verification

CLP .....Contract Laboratory Program

COC .....Chain of Custody

CRDL.....Contract Required Detection Limit

DI .....Deionized Water

DIS .....Dissolved

DQO.....Data Quality Objective

ELI-Hel .....Energy Laboratories, Inc., Helena, Montana

EPA.....U.S. Environmental Protection Agency

ICV .....Initial Calibration Verification

IDL.....Instrument Detection Limit

LCS .....Laboratory Control Sample

LFB .....Laboratory Fortified Blank

MS.....Matrix Spike

NA.....Not Applicable

PDLG.....Project Detection Limit Goal

QC.....Quality Control

RPD.....Relative Percent Difference

SC .....Specific Conductivity

TDS.....Total Dissolved Solids

SUMMARY

East Helena residential well water (groundwater) samples were collected on July 20, 2005 for the ASARCO East Helena Facility Interim Measures Project. Inorganic constituents for these samples were validated using U.S. Environmental Protection Agency (EPA) guidelines for data validation (EPA 2002) and the project work plan (ASARCO 2002). Samples were analyzed by Energy Laboratories, Inc. (ELI-Hel) in Helena, Montana. The validated database is located in Appendix 1.

Data quality objectives for this project and the results for this sampling event were as follows:

- **Precision** is determined by field and laboratory duplicate sample results that are within control limits. The completeness objective for precision is 90% of the duplicate sample results within control limits. **This objective was met as 100% of the field and laboratory duplicate results were within control limits.**

- **Accuracy** is determined by laboratory control sample (LCS) and matrix spike (MS) sample results that are within control limits. The completeness objective for accuracy is 90% of the LCS and MS sample results within control limits. **This objective was met as 100% of the LCS (see the following note) and MS results were within control limits.**

  ***Note:** Due to the lack of LCSs for arsenic and sulfate analyses, initial calibration verification, continuing calibration verification, and fortified laboratory standards were used to assess the accuracy for these analytes.

- **Completeness** is calculated by the number of valid (not rejected) data per number of planned data, expressed as a percentage. The completeness goal for this project was 90%. **This goal was met as 100% of the planned data were analyzed and deemed valid.**

All reported data for ASARCO Interim Measures' July 2005 sampling events are deemed valid and can be used for the purposes they were intended. Of the total number of analyses, **100%** can be used without qualification.

DATA VALIDATION REPORT

1. INTRODUCTION

- This validation applies to analyses for six groundwater samples collected on 7/20/05 for the ASARCO East Helena Interim Measures project. One field blank and one field duplicate sample were included with these samples.

- Validation procedures used are generally consistent with:
  - _X_ EPA Contract Laboratory Program (CLP) National Functional Guidelines for Inorganics Data Review (EPA 2002)
  - _X_ Work Plan – Interim Measures Work Plan Addendum (ASARCO 2002)
  - ___ Other

- Overall level of validation:
  - ___ CLP
  - _X_ Standard – Field and laboratory quality control (QC) samples are reviewed; and samples associated with QC violations are flagged.
  - ___ Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (EPA 2001), and/or the project contract.
  - _X_ Yes
  - ___ No

- All documentation of field procedures was provided as required.
  - _X_ Yes
  - ___ No

3. FIELD PROCEDURES

- All project required sites were visited.
  - _X_ Yes
  - ___ No

- Field parameters were measured in accordance with the project work plan.
  - _X_ Yes
  - ___ No

- Field instruments were calibrated daily and before measurements were collected.
  _X_ Yes
  ___ No

- Chains of Custodies (COCs) were properly filled out and signed by the field personnel.
  _X_ Yes
  ___ No

- Data entry into field books, on COCs, and on sample labels were accurate and complete.
  _X_ Yes
  ___ No

4. FIELD BLANKS

Blanks: Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

Deionized water (DI), trip, rinsate, or any other field blanks have been carried out at the proper frequency (one rinsate blank and one DI blank per event).
_X_ Yes
___ No

Reported results on the field blanks were less than the Project Detection Limit Goals (PDLGs).
_X_ Yes
___ No

5. FIELD DUPLICATES

Field duplicates have been collected at the proper frequency (one field duplicate per event).
_X_ Yes
___ No

Field duplicate relative percent differences (RPDs) were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.
_X_ Yes
___ No

6. LABORATORY PROCEDURES

- **Laboratory procedures followed**
  - _X_ CLP-Statement of Work (EPA 2001)
  - _X_ SW-846 (EPA 1986)
  - _X_ Methods for Chemical Analysis of Water and Wastes (EPA 1983)
  - ___ Other

- **Holding times met**
  - _X_ Yes
  - ___ No

- **Consistency with project requirements**

  Analyses were carried out as required by the project work plan (ASARCO 2002).
  - _X_ Yes
  - ___ No

  Project specified methods were used.
  - _X_ Yes
  - ___ No

7. DETECTION LIMITS

- Reporting detection limits met PDLGs.
  - _X_ Yes
  - ___ No

8. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- Method blanks were prepared and analyzed at the required frequency (one per batch or one per 20 samples, whichever is greater.
  - _X_ Yes
  - ___ No

- All the analytes in the blank were less than the PDLG.
  - _X_ Yes
  - ___ No

9. LABORATORY MATRIX SPIKES

- A MS sample (pre-digestion) was analyzed at the proper frequency (one per batch and/or matrix).

  ___ Yes
  _X_ No – see notes

  Notes: The following items were noted for this sampling event.

  - Samples from an unknown source were used for sulfate matrix spikes. The accuracy for sulfate was evaluated using Initial Calibration Verification (ICV) Standards, Continuing Calibration Verification (CCV) Standards and Laboratory Fortified Blanks (LFBs).

- MS recoveries were within the required control limits (75-125%).

  _X_ Yes
  ___ No

10. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  _X_ Yes
  ___ No

- RPDs were within the required control limits (RPD of 20% or less). If the sample or duplicate result is less or equal to five times the PDLG, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate results must be within ± the PDLG.

  _X_ Yes
  ___ No

11. LABORATORY CONTROL STANDARDS

- The reference material used was of the correct matrix.

  _X_ Yes
  ___ No

- Laboratory Control Samples (LCS) were prepared and analyzed at the proper frequency (one per batch or one per 20 samples, whichever is greater).

  ___ Yes
  _X_ No – see notes

  Notes: Specific LCS samples were not run for sulfate or dissolved arsenic. Therefore ICVs, CCVs, and FLBs were used to assess the accuracy of these analytes.

- LCS recoveries were within the required control limits (80-120% or certified range).
  _X_ Yes – see notes
  ___ No
  Notes: The required control limit range for ICVs and CCVs is 90 to 110% recovery. All ICV/CCV recovery rates were within these control limits.

12. INTERPARAMETER COMPARISON

___Lab pH vs. Field pH
___Lab Specific Conductivity (SC) vs. Field SC
_X_Total Dissolved Solids (TDS) vs. SC

TDS vs. Lab SC: The ratio of TDS to field SC results should lie between 0.55 and 0.75. This ratio is intended to be a check on the accuracy of the TDS and lab SC measurements. In natural waters with high sulfate, the ratio may be much higher. This ratio is less accurate in dilute waters. TDS/SC ratios for this sampling event were from 0.69 to 0.82. Although some of these ratios were slightly high (greater than 0.75), the TDS and SC results for the sites were line with historical data. Therefore no action was taken.

13. HISTORICAL COMPARISON SUMMARY

Data for this sampling event were compared with previous sampling events. All results were less than three standard deviations from the historical mean.

14. DATA QUALITY OBJECTIVES (DQOS)

- The data quality goal was met for precision (90% of the field and laboratory duplicates were within control limits).
  _X_ Yes –see the following table
  ___ No

Precision Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Field Duplicates	1*	0	1	100%
Lab Duplicates	14	0	14	100%
Overall	**15**	**0**	**15**	**100%**

*Sulfate and TDS analyses are not requested for field duplicates. Therefore, only laboratory precision was measured for these analytes.

- The data quality goal was met for accuracy (90% of the LCS and matrix spike results were within control limits).
  _X_ Yes – see the table on the following page
  ___ No

Accuracy Objectives

QC Type	Total Results	# of Results Out of Control Limits	# of Results Within Control Limits	% Within Control Limits
Matrix Spikes	4	0	4	100%
LCS*	9	0	9	100%
Overall	**13**	**0**	**13**	**100%**

*ICV, CCV, and FLB results for arsenic and sulfate analyses were included.

- DQO target for completeness was met (the number of valid results divided by the number of possible results is 90% or above).
  _X_ Yes – see the following table
  ___ No

Completeness

# of Planned Measurements	Actual # of Measurements	# of Rejected Measurements	# of Valid Measurements	Completeness
22	**22**	**0**	**22**	**100%**

- Samples were qualified for QC exceedances and deficiencies.
  _X_ Yes – see the following table
  ___ No

Qualification of Samples

# of Measurements	# of Qualified Measurements	# Not Qualified	% Not Qualified
22	**0**	**22**	**100%**

15. CONCLUSION

All planned sites were sampled and the required number of measurements for these sites was analyzed and deem valid for ASARCO Interim Measures' July 2005 sampling events. The data from these sites can be used for the purposes they were intended.

Data Validation Report by: Linda L. Tangen

Client Review by: Jon Nickel

REFERENCES

ASARCO 2002. *Interim Measures Work Plan Addendum, East Helena Facility.* ASARCO Consulting Inc. Revised May.

EPA 1983. *Methods for Chemical Analysis of Water and Wastes.* United States Environmental Protection Agency. March.

EPA 1986. *Test Method for Evaluating Solid Waste: Physical/Chemical Methods 3rd Ed. 4 Vols.* United States Environmental Protection Agency. November.

EPA 2001. *USEPA Contract Laboratory Program Statement of Work for Inorganic Analysis.* United States Environmental Protection Agency. Document Number ILM05.2. December.

EPA 2002. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* United States Environmental Protection Agency. July.

APPENDIX 1

DATABASE

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents by Station Type

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 9/8/2005 1:27:22 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents By Lab Sample ID

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 9/8/2005 1:27:22 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Table of Contents by Sample ID

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

Run Time: 9/8/2005 1:27:22 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix		
Water	STATION	Gail109
	SAMPLE DATE	7/20/2005
	SAMPLE TIME	10:30
	LAB	ELI-Hel
	LAB NUMBER	H05070155-004
	SAMPLE NUMBER	EHR-0705-303
	TYPE	Domestic Wells
	GROUP	Private Wells
	DESCRIPTION	
	REMARKS	

Common Ions (mg/L): unless noted	
Sulfate (SO4)	52
Metals (mg/L): unless noted	
Arsenic (As) (DIS)	<0.002
Physical/Fld-Lab: unless noted	
pH (Fld)	7.01
SC (umhos/cm at 25 C) (Fld)	267
TDS (Measured at 180 C)	197

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:27:22 PM

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix		
Water	STATION	Gall203
	SAMPLE DATE	7/20/2005
	SAMPLE TIME	11:00
	LAB	ELI-Hel
	LAB NUMBER	H05070155-005
	SAMPLE NUMBER	EHR-0705-304
	TYPE	Domestic Wells
	GROUP	Private Wells
	DESCRIPTION	
	REMARKS	

Common Ions (mg/L): unless noted	
Sulfate (SO4)	51
Metals (mg/L): unless noted	
Arsenic (As) (DIS)	<0.002
Physical/Fld-Lab: unless noted	
pH (Fld)	6.77
SC (umhos/cm at 25 C) (Fld)	255
TDS (Measured at 180 C)	190

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix		
Water	STATION	Gail301
	SAMPLE DATE	7/20/2005
	SAMPLE TIME	11:30
	LAB	ELI-Hel
	LAB NUMBER	H05070155-006
	SAMPLE NUMBER	EHR-0705-305
	TYPE	Domestic Wells
	GROUP	Private Wells
	DESCRIPTION	
	REMARKS	

Common Ions (mg/L): unless noted	
Sulfate (SO4)	464
Metals (mg/L): unless noted	
Arsenic (As) (DIS)	<0.002
Physical/Fld-Lab: unless noted	
pH (Fld)	6.92
SC (umhos/cm at 25 C) (Fld)	1320
TDS (Measured at 180 C)	912

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix	STATION	Gail401	Gail401
Water	SAMPLE DATE	7/20/2005	7/20/2005
	SAMPLE TIME	08:00	08:15
	LAB	ELI-Hel	ELI-Hel
	LAB NUMBER	H05070155-001	H05070155-002
	SAMPLE NUMBER	EHR-0705-300	EHR-0705-301
	TYPE	Domestic Wells	Domestic Wells
	GROUP	Private Wells	Private Wells
	DESCRIPTION		
	REMARKS		Field Duplicate
Common Ions (mg/L): unless noted			
	Sulfate (SO4)	227	
Metals (mg/L): unless noted			
	Arsenic (As) (DIS)	<0.002	<0.002
Physical/Fld-Lab: unless noted			
	pH (Fld)	6.67	
	SC (umhos/cm at 25 C) (Fld)	683	
	TDS (Measured at 180 C)	559	

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

ASARCO, East Helena Plant

ANALYSES SUMMARY REPORT

July 2005 Bi-Monthly Sampling Event

C:\EnviroDataDB\Databases\V5_B_DB\EastHelena.mdb

Sample Matrix		
Water	STATION	FieldBlank
	SAMPLE DATE	7/20/2005
	SAMPLE TIME	08:30
	LAB	ELI-Hel
	LAB NUMBER	H05070155-003
	SAMPLE NUMBER	EHR-0705-302
	TYPE	Field QC
	GROUP	QC
	DESCRIPTION	
	REMARKS	Blank
Metals (mg/L): unless noted		
	Arsenic (As) (DIS)	<0.002

TOT: Total; DIS: Dissolved; TRC: Total Recoverable

NOTE: Table 1 lists data validation flagging descriptions.

Run Time: 9/8/2005 1:27:22 PM

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Asarco LLC
Jon Nickel
PO Box 1230
East Helena MT 59635

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ANALYTICAL SUMMARY REPORT

September 19, 2005

Jon Nickel
Asarco LLC
PO Box 1230
East Helena, MT 59635

Workorder No.: H05090071

Project Name: Bi-Monthly Residential Well Monitoring- Sept. 2005

Energy Laboratories Inc received the following 6 samples from Asarco LLC on 9/8/2005 for analysis.

Sample ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H05090071-001	EHR-0905-300	09/08/05 8:00	09/08/05	Aqueous	Metals by ICP/ICPMS, Dissolved Solids, Total Dissolved Sulfate
H05090071-002	EHR-905-301	09/08/05 8:30	09/08/05	Aqueous	Same As Above
H05090071-003	EHR-905-302	09/08/05 10:00	09/08/05	Aqueous	Same As Above
H05090071-004	EHR-905-303	09/08/05 10:30	09/08/05	Aqueous	Same As Above
H05090071-005	EHR-0905-304	09/08/05 10:45	09/08/05	Aqueous	Metals by ICP/ICPMS, Dissolved
H05090071-006	EHR-0905-305	09/08/05 11:00	09/08/05	Aqueous	Same As Above

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative or Report.

If you have any questions regarding these tests results, please call.

Report Approved By: Jennifer Harper

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CASE NARRATIVE

NONE

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-001
Client Sample ID: EHR-0905-300 JENSEN RESIDENCE

Report Date: 09/19/05
Collection Date: 09/08/05 08:00
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	543	mg/L		10		A2540 C	09/10/05 15:42 / ljm
INORGANICS							
Sulfate	218	mg/L	D	1		A4500-SO4 E	09/15/05 10:07 / ljm
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 00:10 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-002
Client Sample ID: EHR-905-301 CORBETT RESIDENCE

Report Date: 09/19/05
Collection Date: 09/08/05 08:30
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	168	mg/L		10		A2540 C	09/10/05 15:42 / ljm
INORGANICS							
Sulfate	56	mg/L		1		A4500-SO4 E	09/15/05 10:08 / ljm
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 00:44 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-003
Client Sample ID: EHR-905-302 YURICIC RESIDENCE

Report Date: 09/19/05
Collection Date: 09/08/05 10:00
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	887	mg/L		10		A2540 C	09/10/05 15:42 / ljm
INORGANICS							
Sulfate	511	mg/L	D	2		A4500-SO4 E	09/15/05 10:09 / ljm
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 00:50 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix interference.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-004
Client Sample ID: EHR-905-303 NORDSTROM RESIDENCE

Report Date: 09/19/05
Collection Date: 09/08/05 10:30
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	184	mg/L		10		A2540 C	09/10/05 15:43 / ljm
INORGANICS							
Sulfate	57	mg/L		1		A4500-SO4 E	09/15/05 10:09 / ljm
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 00:57 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-005
Client Sample ID: EHR-0905-304 NORDSTROM RESIDENCE (REPLICATE)

Report Date: 09/19/05
Collection Date: 09/08/05 10:45
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 01:04 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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877-472-0711 • 406-442-0711 • 406-442-0712 fax • helena@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Lab ID: H05090071-006
Client Sample ID: EHR-0905-305 FIELD BLANK

Report Date: 09/19/05
Collection Date: 09/08/05 11:00
Date Received: 09/08/05
Matrix: Aqueous

Analyses	Result	Units	Qual	RL	MCL/ QCL	Method	Analysis Date / By
METALS, DISSOLVED							
Arsenic	ND	mg/L		0.002		E200.8	09/18/05 01:11 / car

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

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QA/QC Summary Report

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005

Report Date: 09/19/05
Work Order: H05090071

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: 050910A-SLDS-TDS-W	
Sample ID: MBLK1_050910A	Method Blank							09/10/05 15:38	
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	6						
Sample ID: LCS1_050910A	Laboratory Control Spike							09/10/05 15:38	
Solids, Total Dissolved TDS @ 180 C	969	mg/L	10	96.9	90	110			
Sample ID: H05090052-001ADUP	Sample Duplicate							09/10/05 15:39	
Solids, Total Dissolved TDS @ 180 C	2810	mg/L	10				1.5	20	
Sample ID: H05090052-008AMS	Sample Matrix Spike							09/10/05 15:40	
Solids, Total Dissolved TDS @ 180 C	8210	mg/L	10	93.5	80	120			
Sample ID: H05090052-008AMSD	Sample Matrix Spike Duplicate							09/10/05 15:40	
Solids, Total Dissolved TDS @ 180 C	8340	mg/L	10	99.8	80	120	1.5	10	
Sample ID: H05090071-001ADUP	Sample Duplicate							09/10/05 15:42	
Solids, Total Dissolved TDS @ 180 C	547	mg/L	10				0.7	20	
Method: A4500-SO4 E								Batch: 050915A-SO4-TURB-W	
Sample ID: MBLK1_050915A	Method Blank							09/15/05 09:54	
Sulfate	0.9	mg/L	0.2						
Sample ID: LCS1_050915A	Laboratory Control Spike							09/15/05 10:07	
Sulfate	398	mg/L	2.3	98.5	90	110			
Sample ID: H05090074-001AMS	Sample Matrix Spike							09/15/05 10:20	
Sulfate	23.8	mg/L	1.0	99.9	80	120			
Sample ID: H05090074-001AMSD	Sample Matrix Spike Duplicate							09/15/05 10:21	
Sulfate	23.7	mg/L	1.0	99.4	80	120	0.4	10	
Sample ID: H05090082-003BDUP	Sample Duplicate							09/15/05 11:05	
Sulfate	91.6	mg/L	1.0				2.3	20	
Sample ID: H05090082-008BMS	Sample Matrix Spike							09/15/05 11:06	
Sulfate	21.7	mg/L	1.0	97.9	80	120			
Sample ID: H05090082-008BMSD	Sample Matrix Spike Duplicate							09/15/05 11:07	
Sulfate	21.6	mg/L	1.0	97.4	80	120	0.5	10	
Sample ID: H05090101-001BDUP	Sample Duplicate							09/15/05 11:00	
Sulfate	237	mg/L	1.2				3.3	20	

Qualifiers:

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QA/QC Summary Report

Client: Asarco LLC
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005

Report Date: 09/19/05
Work Order: H05090071

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: SUB-B64916	
Sample ID: CCV - ME050222A, ME0	Continuing Calibration Verification							09/17/05 23:02	
Arsenic	0.048	mg/L	0.0050	96.5	89.5	110.5			
Sample ID: CCB	Continuing Calibration Blank							09/18/05 00:23	
Arsenic	0.000067	mg/L	0.0050						
Sample ID: QCS - ME050621C,0507	Initial Calibration Verification Standard							09/17/05 10:54	
Arsenic	0.052	mg/L	0.0050	103	90	110			
Sample ID: QCS - ME050621C,05071	Initial Calibration Verification Standard							09/17/05 22:41	
Arsenic	0.051	mg/L	0.0050	103	90	110			
Method: E200.8								Batch: B_R64916	
Sample ID: LRB	Method Blank							09/17/05 11:43	
Arsenic	ND	mg/L	0.00004						
Sample ID: B05090501-014BMS	Sample Matrix Spike							09/17/05 12:10	
Arsenic	0.0511	mg/L	0.0050	102	70	130			
Sample ID: B05090501-014BMSD	Sample Matrix Spike Duplicate							09/17/05 12:17	
Arsenic	0.0519	mg/L	0.0050	104	70	130	1.6	20	
Sample ID: B05090538-001BMS	Sample Matrix Spike							09/17/05 13:32	
Arsenic	0.05288	mg/L	0.0050	105	70	130			
Sample ID: B05090538-001BMSD	Sample Matrix Spike Duplicate							09/17/05 13:38	
Arsenic	0.05187	mg/L	0.0050	103	70	130	1.9	20	
Sample ID: B05090554-001DMS	Sample Matrix Spike							09/17/05 15:07	
Arsenic	0.065	mg/L	0.0010	107	70	130			
Sample ID: B05090554-001DMSD	Sample Matrix Spike Duplicate							09/17/05 15:13	
Arsenic	0.064	mg/L	0.0010	105	70	130	1.1	20	
Sample ID: B05090681-006AMS	Sample Matrix Spike							09/17/05 21:06	
Arsenic	0.055	mg/L	0.0010	104	70	130			
Sample ID: B05090681-006AMSD	Sample Matrix Spike Duplicate							09/17/05 21:13	
Arsenic	0.054	mg/L	0.0010	102	70	130	1.3	20	
Sample ID: B05090742-006AMS	Sample Matrix Spike							09/18/05 01:17	
Arsenic	0.05164	mg/L	0.0050	103	70	130			

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QA/QC Summary Report

Client: Asarco LLC
Report Date: 09/19/05
Project: Bi-Monthly Residential Well Monitoring- Sept. 2005
Work Order: H05090071

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: B_R64916	
Sample ID: B05090742-006AMSD	Sample Matrix Spike Duplicate							09/18/05 01:24	
Arsenic	0.05131	mg/L	0.0050	103	70	130	0.6	20	
Sample ID: B05090767-002AMS	Sample Matrix Spike							09/18/05 02:52	
Arsenic	0.053	mg/L	0.0010	104	70	130			
Sample ID: B05090767-002AMSD	Sample Matrix Spike Duplicate							09/18/05 02:59	
Arsenic	0.053	mg/L	0.0010	103	70	130	0	20	

Qualifiers:

RL - Analyte reporting limit.

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Energy Laboratories Inc

Sample Receipt Checklist

Client Name Asarco, Inc.

Date and Time Received: 9/8/2005 3:01:00 PM

Work Order Number H05090071

Received by sld

Checklist completed by: Signature Kennedy 9-5-05 Date

Reviewed by JMH HDS Initials 9/12/05 Date 9/13/05

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	4.5 °C
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Adjusted? _____ Checked by _____

Any No and/or NA (not applicable) response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments:

Corrective Action _____

ASARCO - EAST HELENA PLANT

100 Smelter Road* P.O. Box 1230 * East Helena, MT. 59635* (406) 227-4529* FAX (406)227-2256

CHAIN OF CUSTODY RECORD

Person Requesting Service: Jon Nickel

Project Description: Bi-Monthly Residential Well Monitoring - Sept. 2005

Send Original Report To: Jon Nickel

Send Additional Copy of Report To: E-Mail to Linda Tangen

Services Requested No Later Than: September 25, 2005

Sampler(s) (Signature): J Nickel

Sampler(s) (Signature):

Mail Results and Billing to:

Jon Nickel
Asarco
P. O. Box 1230
East Helena, Montana 59635
227-4529

DATE/TIME	SAMPLE DESCRIPTION	SAMPLE ID NO.	No. of Containers	TRM: As,Cd,Cu,Pb,Sb,Se,Tl, EPA method 200.8/6020(HNO3	TRM:Fe, Zn, EPA method 200.7/6010 (HNO3)	TRM: Hg, EPA method 245.2 (HNO3)	Total Suspended Solids: EPA method 160.2 (None)	TRM: Mn, EPA method 200.7/6010 (HNO3)	TRM: Ag, EPA method 200.7/6010 (HNO3)	Dissolved Metals: Al, EPA method 200.7/6010 (HNO3)	Total Ammonia: EPA method 350.1 (H2SO4)	Total Phosphorus: EPA method 365.2 (H2so4)	BOD-5: EPA method 405.1 (None)	COD: EPA Method 410.4 (H2SO4)	Dissolved Metals: As, EPA method 200.7/6010 (HNO3)	Total Dissolved Solids: EPA method 160.1 (None)	Sulfate (EPA Method 9036)	REMARKS	Laboratory Use Only Lab No.
9/08/2005,0800	EHR-0905-300	Raw	1													X	X	Raw, Unfiltered	H0509071-001A
9/08/2005,0800	EHR-0905-300	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-001B
9/08/2005,0830	EHR-0905-301	Raw	1													X	X	Raw, Unfiltered	-002A
9/08/2005,0830	EHR-0905-301	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-002B
9/08/2005,1000	EHR-0905-302	Raw	1													X	X	Raw, Unfiltered	-003A
9/08/2005,1000	EHR-0905-302	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-003B
9/08/2005,1030	EHR-0905-303	Raw	1													X	X	Raw, Unfiltered	-004A
9/08/2005,1030	EHR-0905-303	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-004B
9/08/2005,1045	EHR-0905-304	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-005A
9/08/2005,1100	EHR-0905-305	Dissolved Arsenic	1												X			Filtered, Preserved with HNO3	-006A

	Date	Time		
(1) Relinquished By: (Signature) J Nickel	9/8/05	1500	(1) Received By: (Signature) Annie Kennedy	Courier Company Name/Shipping Airbill No.
(2) Relinquished By: (Signature)	Date	Time	(2) Received By: (Signature)	Remarks : Hand Delivered to Energy Lab
(3) Relinquished By: (Signature)	Date	Time	Received for Laboratory By: (Signature) Annie Kennedy	Date 9-8-05 Time 15:01

4.5°C temp

Prepared by Asarco - Confidential - ORIGINAL COPY - LABORATORY COPY

H0509071

The attached Table B (Bi-Monthly Residential Well Sampling Parameters -2005) contains a list of Parameters, Analytical Techniques, Analytical Methods, and Project Detection Limits.

M303440
L9-13

TABLE B. BI-MONTLY RESIDENTIAL WELL SAMPLING PARAMETERS - ~~2004~~ 2005

Analytical Parameters	Laboratory Methods[3]	Project Detection Limit Goal (mg/L)
Field Parameters		
pH		
specific conductance (SC)		
Laboratory Parameters		
Common Constituents		
SO_4	9036	1
TDS	160.1	10
Trace Constituents [2]		
As (diss)	7060/6010A/6020	0.002